

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	Atty. Docket: DE 020204
KLAUS SCHOELLER ET AL.	Group Art Unit: 2879
Serial No. 10/527,007	Examiner: WALFORD, N.K.
Filed: MARCH 7, 2005	Confirmation No. 1124
Title: HIGH-PRESSURE DISCHARGE LAMP WITH IMPROVED COLOR POINT STABILITY AND HIGH LUMINOUS EFFICACY	

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Board of Patent Appeals and Interferences  
United States Patent and Trademark Office  
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Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellant herewith respectfully presents a Brief on Appeal as follows, having filed a Notice of Appeal on March 16, 2007:

REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee of record Koninklijke Philips Electronics N.V., a corporation of The Netherlands having an office and a place of business at Groenewoudseweg 1, Eindhoven, Netherlands 5621 BA.

RELATED APPEALS AND INTERFERENCES

Appellants and the undersigned attorney are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-2 and 4-15 are pending in this application. Claims 1-2 and 4-15 are rejected in the Final Office Action mailed December 18, 2006. Claims 1-2 and 4-15 are the subject of this appeal.

STATUS OF AMENDMENTS

Appellants filed on January 19, 2007 an after final amendment in response to a Final Office Action dated December 18, 2006. The after final amendment was entered as indicated in the Advisory Action mailed on February 2, 2007. This Appeal Brief is in response to the Final Office Action mailed December 18, 2006, that finally rejected Claims 1-2 and 4-15, which remain finally rejected in the Advisory Action mailed on February 2, 2007.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention, for example, as claimed in independent Claims 1 and 9, is directed to a high-pressure discharge lamp 1, shown in FIG 1, comprising an inner vessel with a discharge chamber, and with at least two electrodes extending into the discharge chamber, as well as an outer bulb surrounding the inner vessel as described on page 2, lines 9-12, and page 7, lines 10-11 of the specification, for example.

As described on page 5, lines 6-9 of the specification, the outer bulb comprises neodymium oxide, such as an outer bulb glass of quartz glass doped with neodymium oxide, for example. As recited on page 5, lines 17-18 of the specification, the neodymium oxide content may be substantially 2 to 20% by weight with respect to the total weight of the outer bulb.

Further, as recited on page 2, lines 11-19 of the specification, the discharge chamber contains an ionizable filling comprising at least one rare gas, 0 mg to 10 mg of mercury and a metal halide mixture which comprises 40 to 80% by weight of sodium

halide, 25 to 55% by weight of scandium halide, 1 to 15% by weight of indium halide, and 0 to 34% by weight of thallium halide.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Whether Claims 1-2 and 4-15 of U.S. Patent Application Serial No. 10/527,007 are unpatentable under 35 U.S.C. §103(a) over U.S. Patent No. 6,670,765 (Muto) in view of U.S. Patent No. 4,047,069 (Akutsu). It should be noted that, in the entered after final amendment filed on January 19, 2007, Claim 3, (which was rejected under 35 U.S.C. §103(a) as unpatentable over Muto in view of Akutsu) had been canceled, and its features included in independent Claims 1 and 9.

The Appellants respectfully request the Board to address the patentability of independent Claims 1 and 9, and further Claims 2, 4-8 and 10-15 as depending on Claim 1, based on the requirements of independent Claims 1 and 9. This position is provided for the specific and stated purpose of simplifying the current issues on appeal. However, the Appellants herein specifically reserve the right to argue and address the patentability of Claims 2, 4-8 and 10-15 at a later date should the separately patentable subject matter of Claims 2, 4-8 and 10-15 later become an issue. Accordingly, this limitation of the subject matter presented for



appeal herein, specifically limited to discussions of the patentability of independent Claims 1 and 9 is not intended as a waiver of Appellants' right to argue the patentability of the further claims and claim elements at that later time.

ARGUMENT

Independent Claims 1 and 9 are said to be unpatentable over Muto and Akutsu.

In rejecting Claim 3, on page 5, last paragraph of the Final Office Action, the Examiner correctly notes that Muto:

does not expressly disclose that the outer bulb comprises neodymium oxide, the neodymium oxide content being substantially 2 to 20% by weight with respect to the total weight of the outer bulb.

Column 3, lines 47-58 and FIG 2 of Akutsu are cited in an attempt to remedy these two deficiencies in Muto.

It is respectfully submitted that column 3, lines 47-58 of Akutsu teach two distinct embodiments of Akutsu which do not teach or suggest the added features of amended Claims 1 and 9.

In particular, one embodiment of Akutsu is using an outer bulb containing neodymium, not neodymium oxide. Another embodiment of Akutsu is coating the outer bulb with neodymium oxide mixed with phosphor powder.

In stark contrast, independent Claims 1 and 9 specifically require (illustrative emphasis provided):

the outer bulb comprising neodymium oxide.

This feature is nowhere shown or suggested in Akutsu. Rather, as described above, Akutsu shows an outer bulb including neodymium only and nowhere shows including neodymium oxide in the bulb. Neodymium oxide in Akutsu is only a coating on the bulb. There is simply no teaching or suggestion in Akutsu of an outer bulb comprising neodymium oxide as required by independent Claims 1 and 9.

The Final Office Action states on page 6, first full paragraph that "[o]ne with ordinary skill in the art would reasonably understand that the bulb could comprise a neodymium oxide coating." Further, the Advisory Action states that the "limitation of the "outer bulb comprising neodymium oxide" in independent Claims 1 and 9 does not preclude the outer bulb from having a coating of neodymium oxide, as suggested by Akutsu."

Applicants respectfully disagree. It is respectfully submitted that the outer bulb is an element of independent Claims 1 and 9. This element comprises neodymium oxide. A coating would be a second element different from, and additional to, the outer bulb

element.

That is, the element recited in independent Claims 1 and 9, namely, the outer coating itself comprises neodymium oxide, such as an outer bulb glass of quartz glass doped with neodymium, as recited on page 5, line 8 of the specification. Simply put, the outer bulb comprising neodymium oxide is a single element, namely, an outer bulb. By contrast, an outer bulb and a neodymium oxide coating on the outer bulb are two elements, where the first element is the outer bulb and the second element is the coating.

It is respectfully submitted that the present invention requires an outer bulb comprising neodymium oxide, which is not described or suggested in the Akutsu, Muto or combination thereof.

Further, Akutsu nowhere discloses or suggests "the neodymium oxide content being substantially 2 to 20% by weight with respect to the total weight of the outer bulb" as required by independent Claims 1 and 9.

The Final Office Action on page 6, line 2-5 states that it would be obvious to have "the neodymium oxide content being substantially 2 to 20% by weight with respect to the total weight

of the outer bulb, since it has been held that where the general conditions of a claim are disclosed in the [Akutsu] prior art, discovering the optimum or workable ranges involves only routine skill in the art". Applicants respectfully disagree.

It is respectfully submitted that the so called "general conditions" of independent Claims 1 and 9, namely, "outer bulb comprising neodymium oxide" is not even taught or suggested by Akutsu, let alone the particular weight percentage range. Akutsu simply does not disclose or suggest including any neodymium oxide content in the outer bulb at all! Rather, Akutsu shows a coating of neodymium oxide mixed with phosphor powder. Furthermore, Akutsu does not disclose or suggest that the neodymium oxide is substantially 2 to 20% by weight with respect to the total weight of the outer bulb at all.

In stark contrast, the present invention as recited in independent Claim 1, and similarly recited in independent Claim 9, amongst other patentable elements, requires (illustrative emphasis provided):

an outer bulb surrounding the inner vessel,  
the outer bulb comprising neodymium oxide, the

neodymium oxide content being substantially 2 to 20% by weight with respect to the total weight of the outer bulb.

Accordingly, it is respectfully submitted that independent Claims 1 and 9 is allowable, and allowance thereof is respectfully requested. In addition, it is respectfully submitted that Claims 2, 4-8 and 10-15 should also be allowed based at least on their dependence from independent Claim 1.

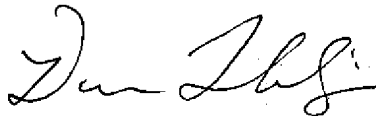
In addition, Appellants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Appellants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

CONCLUSION

Claims 1-2 and 4-15 are patentable over Muto and Akutsu.

In view of the above, it is respectfully submitted that the present application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

Respectfully submitted,

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### CLAIMS APPENDIX

1. A high-pressure discharge lamp comprising:
  - an inner vessel with a discharge chamber,
  - with at least two electrodes extending into the discharge chamber, and
  - an outer bulb surrounding the inner vessel, the outer bulb comprising neodymium oxide, the neodymium oxide content being substantially 2 to 20% by weight with respect to the total weight of the outer bulb,
  - wherein the discharge chamber contains an ionizable filling comprising:
    - at least one rare gas,
    - 0 mg to 10 mg of mercury, and
    - a metal halide mixture comprising:
      - 40 to 80% by weight of sodium halide,
      - 25 to 55% by weight of scandium halide,
      - 1 to 15% by weight of indium halide, and
      - 0 to 34% by weight of thallium halide.



2. The high-pressure discharge lamp as claimed in claim 1, wherein a color point of light emitted by the high-pressure discharge lamp in a CIE 1931 diagram has an X-color coordinate in a range from 0.345 to 0.375, and a Y-color coordinate in a range from 0.350 to 0.375.

Claim 3 (Canceled)

4. The high-pressure discharge lamp as claimed in claim 1, wherein a color temperature of light emitted by the high-pressure discharge lamp lies in a range from 4300 K to 5000 K.

5. The high-pressure discharge lamp as claimed in claim 1, wherein luminous efficacy of light emitted by the high-pressure discharge lamp is at least 70 lm/W.

6. The high-pressure discharge lamp as claimed in claim 1, wherein a color point change with respect to an X-color coordinate

and a Y-color coordinate in a CIE 1931 diagram amounts to  $\leq 6\%$  over a period of operation of the high-pressure discharge lamp of 1500 hours.

7. The high-pressure discharge lamp as claimed in claim 1, wherein the at least one rare gas includes xenon, and the ionizable filling further comprises:

- 50 to 70% by weight of sodium iodide,
- 30 to 50% by weight of scandium iodide,
- 1 to 15% by weight of indium iodide, and
- 0 to 10 mg mercury.

8. The high-pressure discharge lamp as claimed in claim 1, wherein the at least one rare gas includes xenon, and the ionizable filling comprises:

- 50 to 60% by weight of sodium iodide,
- 35 to 45% by weight of scandium iodide,
- 1 to 15% by weight of indium iodide, and
- 0 to 10 mg mercury.

9. A lamp comprising:

an inner vessel including an ionizable filling; and

an outer bulb surrounding the inner vessel;

wherein the outer bulb includes neodymium oxide, the neodymium oxide content being substantially 2 to 20% by weight with respect to a total weight of the outer bulb;

the ionizable filling comprising:

at least one rare gas,

0 mg to 10 mg of mercury, and

a metal halide mixture comprising:

40 to 80% by weight of sodium halide,

25 to 55% by weight of scandium halide,

1 to 15% by weight of indium halide, and

0 to 34% by weight of thallium halide.

10. (Previously Presented) A lighting unit comprising the high-pressure discharge lamp as claimed in claim 1.

11. The high-pressure discharge lamp of claim 1, wherein a color point of light emitted by the high-pressure discharge lamp in a CIE 1931 diagram has an X-color coordinate in a range from 0.350 to 0.370, and a Y-color coordinate in a range from 0.355 to 0.370.

12. The high-pressure discharge lamp of claim 1, wherein a color point of light emitted by the high-pressure discharge lamp in a CIE 1931 diagram has an X-color coordinate in a range from 0.355 to 0.360, and a Y-color coordinate in a range from 0.350 to 0.375.

13. The high-pressure discharge lamp of claim 1, wherein a color temperature of light emitted by the high-pressure discharge lamp lies in a range from 4700 K to 4800 K.

14. (Previously Presented) The high-pressure discharge lamp of claim 1, wherein luminous efficacy of light emitted by the high-pressure discharge lamp is at least  $\geq 75$  lm/W.

15. The high-pressure discharge lamp of claim 1, wherein a

color point change with respect to an X-color coordinate and a Y-color coordinate in a CIE 1931 diagram amounts to  $\leq 5\%$  over a period of operation of the high-pressure discharge lamp of 1500 hours.

**EVIDENCE APPENDIX**

None

Patent  
Serial No. 10/527,007  
Appeal Brief in Reply to Final Office Action of December 18, 2006,  
and Advisory Action of February 2, 2007

**RELATED PROCEEDINGS APPENDIX**

None